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Erwin Bayer

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EXAMINER

SAAD, ERIN BARRY

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/538,519  
Filing Date: November 07, 2005  
Appellant(s): BAYER ET AL.

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Clifford Ulrich  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/19/2009 appealing from the Office action mailed 2/25/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6299051	Tsujino	10-2001
6326717	Mattes	12/2001

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6617766	Stoecklein et al.	9-2003
2003/0086748	Culpepper	5/2003

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-12, 14-15 and 20-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujino (6,299,051) in view of Mattes (6,326,717).

Regarding claim 10, Tsujino states an ultrasonic bonder which uses oscillation to bond electronic parts together (column 1 lines 8-15). The bottom substrate is fixed to the base 9 (figure 1 and column 3 lines 51-55). The cartridge/bonding head 4 with sealing cap 4 holds the substrate 2 that is being ultrasonically bonded to bottom, stationary substrate (figure 1 and column 3 lines 29-40). The ultrasonic bonding device has two piezoelectric transducers 7, 8 (figure 1). The piezoelectric transducers 7, 8 create the oscillating motion of the cartridge/bonding head and are in line with each other on the cartridge/bonding head 4 (column 3 lines 55-63). The piezoelectric transducers would be displaceable with the cartridge/bonding head 4 since they are attached by the honed 5, 6 (figure 1). The piezoelectric transducers are prestressable

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because the piezoelectric transducers and the hones 5,6 can be changed to produce a frequency and phase difference for the driving oscillation system (column 4 lines 28-39 and figure 1). In the event that “prestressable” is not met by Tsujino, Mattes states the a of piezo actuator that is prestressable (column 1 lines 49-54). It would have been obvious at the time of the invention to use a prestressable piezo actuator with the ultrasonic bonder because it would allow for precise movements/oscillation of the cartridge/bonding holder during bonding. Tsujino states that a defined force is exerted to the top of the cartridge/bonding head 4 (column 3 lines 51-63). While it is not defined as a compression device, it would have been obvious to one skilled in the art at the time of the invention to use a compression device to exert a force to keep a constant pressure on the cartridge/bonding head while oscillating.

Regarding claims 11 and 12, these claims are intended use limitations. The intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

Regarding claim 14, Tsujino does state that the motions generate a circular/elliptical oscillating path (column 4 lines 28-39).

Regarding claim 15, Tsujino states a bonding holder 4 which to one skilled in the art would be defined as a cam gear because a cam gear is “a disk or cylinder having an irregular form such that its motion, usually rotary, gives to a part or parts in contact with it a specific rocking or reciprocating motion”.

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Regarding claim 20, this claim is intrinsic because it is well known in the art that the force/path of the piezoactuators is selected by geometrical serial and parallel connection of piezoelements.

Regarding claim 21, this claim is intrinsic because it is well known in the art that the maximum required electrical voltage of the piezoactuators is limited by electrical serial and parallel connection of piezoelements.

3. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujino (6,299,051) and Mattes (6,326,717) as applied to claim 10 above, and further in view of Stoeklein et al. (6,617,766) and Culpepper (2003/0086748).

Regarding claim 13, Tsujino does state a defined force being exerted on the cartridge/bonding head 4, the type of compression device is not stated. However, Stoeklein et al. does mention a piezoelectric actuator 1 with piezo electric elements 2 used to exert a force  $F_u$  on an actuating element (figure 1 and column 3 lines 45-54). It would have been obvious at the time of the invention to use a piezoelectric actuator as the compression device exerting a defined force because using piezoelectric actuators to exert a force on an object are well known in the art as stated by Culpepper (page 6 paragraph 0053) and it would allow for a precise force to be defined to hold down the cartridge/bonding head 4.

**(10) Response to Argument**

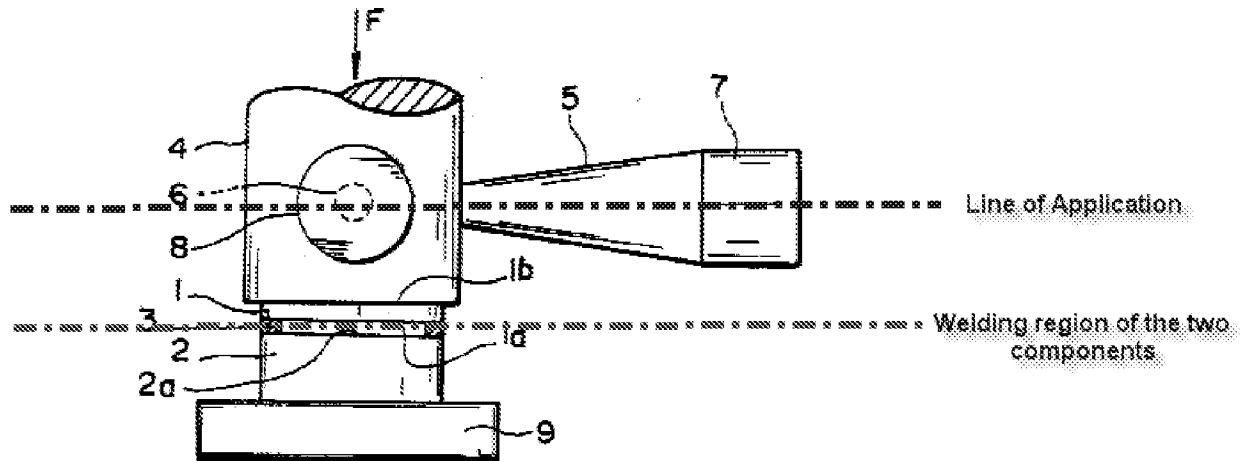
4. The Appellant argues that the prior art does not disclose *a cartridge adapted to accommodate a component outside of a welding zone*. The Appellant argues that Tsujino plainly states that the "bonding head 4 is placed on the upper face 1b of the sealing cap 1".

Taken in its broadest reasonable interpretation, the bonding head of Tsujino is considered a cartridge because it *contains* the component by holding down and preventing movement of the component during welding. The bonding head 4 is located outside the welding zone at bonding faces 1a and 2a (figure 1). The claimed limitation does not specifically state that the components are inside the cartridge during welding.

5. The Appellant argues that the piezoactuators of Tsujino are not arranged in pairs at least approximately on a line of application. The Appellant states that Tsujino discloses piezoelectric transducers 7,8 coupled to oscillation transmitting hones 5,6 "that are in an orthogonal direction to the welding head 4".

As shown below (figure 1), the piezoactuators/elements 7,8 of Tsujino are arranged in pairs (next to each other in an orthogonal arrangement) approximately on a line of application. Even though the piezoactuators/elements of Tsujino are orthogonal to the welding head 4, they are still on a line of application. The claim does not specifically define the direction of the "line of application".

FIG. 1



6. The Appellant argues that Mattes, Stoecklein and Culpepper do not meet the critical deficiency of Tsujino as stated in the arguments above.

The Examiner disagrees. The arguments regarding the deficiency of Tsujino were not found persuasive as stated above.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.



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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/ERIN B SAAD/

Examiner, Art Unit 1793

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